



Estimating the spatial distribution of hillslope sediment delivery to river channels using information at three different spatial scales in the Cuyaguajeje basin, Cuba

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The spatial nature of soil erosion and sediment delivery as well as the variety of possible soil conservation and sediment control measures, requires an integrated approach to catchment management. To evaluate such management, a spatially distributed soil erosion model is necessary. This work aims to estimate the spatial distribution of hillslope sediment delivery to river channels using information at three different spatial scales. By means of soil map, 20 different soils were selected. Soil pans (15x45x10cm) were exposed to six 30 minutes lab rainfall simulations (2 slopes and 3 rainfall intensities). Also, plots rainfall simulations on field (2x5m) were done in those 20 soils. A large set of rainfall-runoff-sediment yield data (more than 20 years) in the hydrometric station are available. The implementation of the Soil Conservation Service Curve Number (SCN-CN) method in conjunction with a modification to Universal Soil Loss Equation (USLE) and a sediment routing algorithms were implemented. Computed sediment yield is found to be in good agreement with the observed values. The results and analysis of model application show that the model has considerable potential in field applications.